Notice No.3

Rules and Regulations for the Classification of Naval Ships, January 2020

The status of this Rule set is amended as shown and is now to be read in conjunction with this and prior Notices. Any corrigenda included in the Notice are effective immediately.

Please note that corrigenda amends to paragraphs, Tables and Figures are not shown in their entirety.

Issue date: December 2020

Amendments to	Effective date	IACS/IMO implementation (if applicable)
Volume 1, Part 1, Chapter 2, Section 3	Corrigendum	N/A
Volume 1, Part 3, Chapter 5, Section 10	Corrigendum	N/A
Volume 1, Part 4, Chapter 3, Section 2	Corrigenda	N/A
Volume 1, Part 5, Chapter 3, Section 4	Corrigenda	N/A
Volume 1, Part 6, Chapter 2, Section 3	Corrigenda	N/A
Volume 1, Part 6, Chapter 6, Section 2	Corrigendum	N/A
Volume 1, Part 6, Chapter 3, Sections 2 & 4	Corrigendum	N/A
Volume 1, Part 6, Chapter 4, Section 1	Corrigendum	N/A
Volume 2, Part 8, Chapter 1, Section 8	Corrigenda	N/A
Volume 2, Part 9, Chapter 3, Section 8	Corrigenda	N/A

Lloyd's Register

Volume 1, Part 1, Chapter 2
Classification Regulations

■ *Section 3*
Character of Classification and Class notations

3.10 Other notations

3.10.16 **LMA** or ~~**LMNA**~~ **LNMA.** These notations will be assigned where the ship's manoeuvring capability has been assessed in accordance with the respective performance criteria for each notation. It denotes that the manoeuvring performance has been verified through trials in accordance with LR's Rules.

Volume 1, Part 3, Chapter 5
Anchoring, Mooring, Towing, Berthing, Launching, Recovery and Docking

■ *Section 10*
Anchoring equipment in deep and unsheltered water

10.2 Anchor and chain cable

10.2.1 Anchors and chain cables to be in accordance with *Table 5.10.1 Anchoring equipment for ships in unsheltered water with depth up to 120 m* and based on the Equipment Number EN_1 obtained from the following equation.

$$EN_1 = 0{,}628\left[a\left(\frac{EN}{0{,}628}\right)^{1/2{,}3} + b(1-a)\right]^{2{,}3}$$

where
b = 0,156 x L_R + ~~0,0866~~ 8,372

Volume 1, Part 4, Chapter 3
Special Features

■ *Section 2*
Vehicle decks and fixed ramps

2.4 Secondary stiffening

Table 3.2.4 Design load cases for primary and secondary stiffening and supporting structure

Condition	Loading Stiffening	
	UDL P_{tyw} kN/m^2	Point loads, F_{tys} kN
Manoeuvring internal	–	~~$1{,}6W_{ty}$ $1{,}75W_{ty}$~~
Manoeuvring external	0,5	~~$(1+ n\ a_z)W_{ty}$~~
Parking internal	–	~~1,1~~
Parking external	2	~~$(1+ n\ a_z)W_{ty}$~~
		$1{,}6W_{ty}$ $1{,}75W_{ty}$ $(1+ n\ a_z)W_{ty}$ $1{,}1\ (1+ n\ a_z)W_{ty}$

Volume 1, Part 5, Chapter 3
Local Design Loads

■ *Section 4*
Impact loads on external plating

4.2 Bottom Impact Pressure, IP_{bi}

4.2.1 The bottom impact pressure due to slamming, IP_{bi}, is to be derived using the method given below. This method will produce impact pressures over the whole of the underwater plating region:

where

V_{bs} = slamming velocity, in m/s, and is given by

~~$= \sqrt{V_{th} + 2m_1 iN(N_{sl}) \; for \; N_{sl} \geq 1}$ for $N_{sl} \geq 1$~~

$= \sqrt{\mathbf{V_{th}} + \mathbf{2m_1 ln(N_{sl})}}$ for $N_{sl} \geq 1$

= 0 for $N_{sl} < 1$

N_{sl} = No. of slams in a 3 hour period and is given by

~~$= 1720 PR_{sl} \sqrt{\frac{m_1}{m_0}}$~~

$= 1720 PR_{sl} \sqrt{\frac{m_1}{m_0}}$

u ~~$= \left(\frac{Z2_{wl}}{2m_0} + \frac{V_{thz}}{2m_1}\right)$~~

$= \left(\frac{Z_{wl}^2}{2m_0} + \frac{V_{th}^2}{2m_1}\right)$

Volume 1, Part 6, Chapter 2
Design Tools

■ *Section 3*
Buckling

3.8 Secondary stiffening perpendicular to direction of compression

3.8.2 The minimum moment of inertia of each stiffener including attached effective plating of width, b_{eb}, to ensure that overall panel buckling does not precede plate buckling is to be taken as:

~~$$I_s = \frac{Ds(4N_L^2 - 1)((N_L^2 - 1)^2 - 2(N_L^2 - 1)\kappa + \kappa^2)}{2(5N_L^2 + 1 - \kappa)\Pi^4 E} mm^4$$~~

$$I_s = \frac{Ds(4N_L^2 - 1)((N_L^2 - 1)^2 - 2(N_L^2 + 1)\kappa + \kappa^2)}{2(5N_L^2 + 1 - \kappa)\Pi^4 E} mm^4$$

where

D = ~~$\frac{Et3_p}{12(1-v2)}$~~ $\frac{Et_p^3}{12(1-v^2)}$

Volume 1, Part 6, Chapter 3
Scantling Determination

■ *Section 2*
Minimum structural requirements

2.2 Corrosion margin

Table 3.2.1 Minimum Structural Requirements

Item	Minimum Scantling		
Shell envelope			
Breadth of stem plate	$7L_R$ + 340 mm	≥600	~~*See* Note 2~~
Stem plate thickness	$\omega(5 + 0.083L_2)\sqrt{k_{ms}}$ mm		*See* Note 2

■ *Section 4*
NS2 and NS3 scantling determination

4.6 Watertight bulkheads and deep tanks

Table 3.4.4 Watertight and deep tank bulkhead scantlings

Symbols
P_{bhp} and P_{bhs} = are the watertight bulkhead and deep tank pressure values of the plate panel and stiffener respectively, as defined in ~~*Vol 1, Pt 5, Ch 3, 5.5 Loads for deckhouses, bulwarks and superstructures, Pdh*~~. *Vol 1, Pt 5, Ch 3, 5.8 Design pressures for watertight and deep tank bulkheads and boundaries*

Volume 1, Part 6, Chapter 4
Hull Girder Strength

■ *Section 1*
General

1.2 Hull girder strength notations

1.2.9 The three levels of assessment available for the ~~extreme~~ residual strength assessment notation are summarised as follows:

Volume 1, Part 6, Chapter 6
Material and Welding Requirements

■ *Section 2*
Materials

2.2 Grade of steel

Table 6.2.1 Material classes and grades

ADDITIONAL MINIMUM REQUIREMENTS FOR SINGLE STRENGTH DECK SHIPS OF LENGTH GREATER THAN 150 m
ADDITIONAL MINIMUM REQUIREMENTS FOR SHIPS OF LENGTH GREATER THAN 250 m

Volume 2, Part 8, Chapter 1
Steam Raising Plant and Associated Pressure Vessels

■ *Section 8*
Headers

8.3 Toroidal furnace headers

8.3.1 The minimum thickness of a toroidal header forming the lower end of a waterwall furnace, and supporting the weight of the boiler and water, is to be determined by the following formula:

~~$t = A + \sqrt{A2 + \frac{4M}{J\,S\,\sigma}} + 0{,}75$ mm~~ $t = A + \sqrt{A^2 + \frac{4M}{J\,S\,\sigma}} + c$

t, *p*, *c* and σ are as defined in *Vol 2, Pt 8, Ch 1, 1.2 Definition of symbols*

~~$M = \frac{Wr}{3} - \frac{pd2r}{40}$ Nmm~~ $M = \frac{Wr}{3} - \frac{p\,d^2r}{4}$ Nmm

Volume 2, Part 9, Chapter 3
Electrical Power Distribution and Equipment

■ *Section 8*
Electric cables, optical fibre cables and busbar trunking systems (busways)

8.18 Cable segregation

Table 3.8.8 Cable segregation groups

Criteria	Signal level		~~HF Pulse~~ Group	~~Group~~ Application
	LF/DC	~~Application~~ HF Pulse		

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